ICAROS Student Researcher - Generative model track

Sophie Hsu

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1 Introduction

Here we will explore generative adversarial networks (GANs) in the assignment.

2 Generative Adversarial Network

Implement vanilla GAN with PyTorch and train with the MNIST dataset. You can read the original paper [GPAM+14] and/or read articles online to first understand GANs. To show your results, create a gif that shows the generating results for every 10 epochs.

3 ClusterGAN

There are different GAN architectures and here we would like you to learn about ClusterGAN. You can read the paper [MALK19] and/or find resources online about the network. For this section, we would like you to implement in PyTorch and then train with the Fashion-MNIST dataset, as the authors have done the paper. The generated results should be shown with a gif as well.

References

[GPAM+14] Ian Goodfellow, Jean Pouget-Abadie, Mehdi Mirza, Bing Xu, David Warde-Farley, Sherjil Ozair, Aaron Courville, and Yoshua Bengio. Generative adversarial nets. *Advances in neural information processing systems*, 27, 2014.

[MALK19] Sudipto Mukherjee, Himanshu Asnani, Eugene Lin, and Sreeram Kannan. Clustergan: Latent space clustering in generative adversarial networks. In *Proceedings of the AAAI Conference on Artificial Intelligence*, volume 33, pages 4610–4617, 2019.